What is claimed is:

1. A method, comprising:

exposing an alignment material to an interference pattern to cause a chemical reaction in the alignment material; and

exposing the alignment material to a liquid crystal,

wherein the liquid crystal aligns relative to the alignment material based on the interference pattern.

2. The method of claim 1, wherein the chemical reaction causes polymerization in the alignment material.

3. The method of claim 1, wherein the chemical reaction causes depolymerization in the alignment material.

4. The method of claim 1, wherein the chemical reaction comprises a photochemical reaction.

5. The method of claim 1, wherein a surface of the alignment material is exposed to the interference pattern.

6. The method of claim 5, wherein the surface is substantially planar.

7. The method of claim 5, wherein the surface is curved.

8. The method of claim 7, wherein the surface is an inner-surface of a tube.

9. The method of claim 8, wherein the tube comprises one of a glass and a polymer.

10. The method of claim 5, wherein the surface comprises a channel.

11. The method of claim 1, wherein the alignment material is disposed on a surface of a substrate comprising a substrate material.

12. The method of claim 11, wherein the substrate material is at least one of a glass, a polymer, a metal and a semi-conductor.

13. The method of claim 12, wherein the substrate comprises an electrode layer.

14. The method of claim 13, wherein the electrode layer comprises a transparent electrically conductive material.

15. The method of claim 12, wherein the substrate comprises a thin film transistor.

16. The method of claim 1, wherein the liquid crystal permeates the alignment material.

17. The method of claim 1, wherein the alignment material comprises a liquid crystal.

18. The method of claim 1, wherein the alignment material comprises a polymer.

19. The method of claim 18, wherein the polymer comprises a cinnamate group.

20. The method of claim 18, wherein the polymer is a polyimide.

21. The method of claim 1, wherein the alignment material comprises a silane.

22. The method of claim 1, wherein the interference pattern is formed from two or more optical beams which originate from the same source.

23. The method of claim 22, wherein the optical beams comprise UV radiation.

24. The method of claim 1, wherein the interference pattern is formed from two or more electron beams.

25. The method of claim 1, wherein the interference pattern comprises regions of high intensity and regions of low intensity.

26. The method of claim 25, wherein the liquid crystal aligns relative to the alignment material based on the intensity of the interference pattern.

27. The method of claim 26, wherein the liquid crystal aligns substantially homeotropically where the alignment material is exposed to regions of high intensity.

28. The method of claim 26, wherein the liquid crystal aligns substantially homogeneously where the alignment material is exposed to regions of low intensity.

29. The method of claim 26, wherein the liquid crystal aligns substantially homeotropically where the alignment material is exposed to regions of low intensity.

30. The method of claim 26, wherein the liquid crystal aligns substantially homogeneously where the alignment material is exposed to regions of high intensity.

31. The method of claim 1, wherein the interference pattern comprises regions of different polarization.

32. The method of claim 31, wherein the interference pattern comprises regions of different linear polarization.

33. The method of claim 31, wherein the interference pattern comprises regions of linear polarization and regions of elliptical polarization.

34. The method of claim 31, wherein the liquid crystal aligns relative to the alignment material based on the polarization of the interference pattern.

35. The method of claim 1, wherein at least a portion of the liquid crystal aligns substantially homeotropically relative to a surface of the alignment material.

36. The method of claim 1, wherein at least a portion of the liquid crystal aligns obliquely relative to a surface of the alignment material.

37. The method of claim 1, wherein at least a portion of the liquid crystal aligns substantially homogeneously relative to a surface of the alignment material.

38. The method of claim 1, wherein the interference pattern is formed by overlapping two or more beams.

39. The method of claim 38, wherein two of the beams have similar polarization states.

40. The method of claim 38, wherein two of the beams have different polarization states.

41. The method of claim 38, wherein the interference pattern is formed by overlapping three or more beams and at least two of the beams have similar polarization states.

42. The method of claim 1, wherein the liquid crystal is disposed on the surface prior to exposure to the interference pattern.

43. The method of claim 1, wherein the liquid crystal is disposed on the surface after exposure to the interference pattern.

44. The method of claim 1, further comprising rubbing a surface of the alignment material prior to exposing the alignment material to the interference pattern.

45. The method of claim 1, further comprising exposing a surface of the alignment material to polarized radiation prior to exposing the alignment material to the interference pattern.

46. A method, comprising:

exposing an alignment material to radiation; and

exposing the alignment material to a liquid crystal,

wherein different portions of the alignment material are simultaneously exposed to different polarization states of the radiation and the liquid crystal aligns relative to the alignment material based on the polarization state of the radiation.

47. The method of claim 46, wherein the polarization state of the radiation varies continuously across the alignment material.

48. The method of claim 46, wherein the radiation causes isomerization in the alignment material.

49. A method, comprising:

exposing an alignment material to polarized radiation; and

exposing the alignment material to a liquid crystal,

wherein the polarization state of the radiation varies continuously across a portion of the alignment material and the liquid crystal aligns relative to the alignment material based on the polarization state of the radiation.

50. A method, comprising:

exposing a curved surface comprising an alignment material to polarized radiation; and

disposing a liquid crystal on the curved surface;

wherein the liquid crystal aligns substantially parallel to an alignment direction related to the polarized radiation.

51. The method of claim 50, wherein the curved surface is a cylindrical surface.

52. An article, comprising:

a cylindrical cladding having an axis;

a core surrounding the cladding comprising a liquid crystal;

wherein the liquid crystal is aligned substantially parallel to an alignment direction that is uniform through a cross-section of the cylindrical cladding.

53. A method, comprising:

overlapping at least three beams to form an interference pattern, wherein the beams originate from the same source;

exposing an alignment material to the interference pattern; and

exposing the alignment material to a liquid crystal,

wherein the liquid crystal aligns relative to the alignment material based on the interference pattern.